

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A cell processing method in an asynchronous transfer mode (ATM) switch comprising ~~the steps of:~~

storing unicast cells and multicast cells in a ~~[[buffer]]~~ plurality of shared buffers, and storing addresses of the respective cells in address queues;

giving respective priorities to the cells stored in the buffer;

reading out the cells from the buffer according to the given priorities; and

sending the cells read out from the buffer to fan-out ports, and determining the cell to be finally outputted,

wherein reading out the cells from the buffer according to the assigned priorities comprises:

reading out in a first cycle a highest priority unicast cell from each buffer if one exists and not reading out any multicast cells in the same corresponding buffer; and

if during the first cycle, a respective buffer does not include a unicast cell,

but includes a multicast cell, reading out the multicast cell during the first cycle even if a multicast cell with a higher priority exists along with a unicast cell in another buffer.

2. (Original) The cell processing method as claimed in claim 1, wherein the addresses stored in the address queues are addresses of the cells stored in the buffer.

3. (Original) The cell processing method as claimed in claim 1, wherein the multicast cell addresses are stored in the address queues in distinction from the unicast cell addresses.

4. (Original) The cell processing method as claimed in claim 1, wherein the address queues for storing the multicast cell addresses are multicast connection identifier (MCI) address queues maintained for each MCI.

5. (Original) The cell processing method as claimed in claim 4, wherein the MCI address queue has one write pointer and read pointers as many as the number of fan-out ports.

6. (Canceled).

7. (Original) The cell processing method as claimed in claim 1, wherein the priorities of the unicast cells are determined in the order of their input to the address queues.

8. (Original) The cell processing method as claimed in claim 1, wherein the step of giving the priorities comprises the steps of:

calculating queue lengths for the respective fan-out ports;

determining the priorities by comparing the calculated queue lengths for the respective fan-out ports; and

confirming which buffers the cells having the determined priorities are stored in.

9. (Original) The cell processing method as claimed in claim 8, wherein the queue length is a difference value between the write pointer address and the read pointer address.

10. (Original) The cell processing method as claimed in claim 1, wherein at the step of reading out the cells from the buffer, if a head of line (HOL) blocking is produced between the unicast cells, the unicast cell having a higher priority is first read out; if the HOL blocking is produced between the multicast cells, the multicast cell having a higher priority is

first read out; and if the HOL blocking is produced between the unicast cell and the multicast cell, the unicast cell is first read out irrespective of the queue length of the cell.

11. (Original) The cell processing method as claimed in claim 1, wherein at the step of determining the cell to be finally outputted at the fan-out port, if the unicast cell and the multicast cell simultaneously reach the fan-out port, the cell having a longer queue length is finally outputted.

12. (Currently Amended) ~~The cell processing method as claimed in claim 1, A~~
cell processing method in an asynchronous transfer mode (ATM) switch comprising:
storing unicast cells and multicast cells in a buffer, and storing addresses of the
respective cells in address queues;
giving respective priorities to the cells stored in the buffer;
reading out the cells from the buffer according to the given priorities; and
sending the cells read out from the buffer to fan-out ports, and determining the cell to be
finally outputted,

wherein ~~the step of~~ reading out the cells from the buffer is performed three times for one slot time.

13. (Currently Amended) A cell processing method in an asynchronous transfer mode (ATM) switch comprising the steps of:

storing unicast cells and multicast cells in a buffer plurality of shared buffers, and storing addresses of the respective cells in address queues;

calculating queue lengths for respective fan-out ports of the address queues;

determining priorities of the cells by comparing the calculated queue lengths;

confirming which buffers the cells having the determined priorities are stored in;

reading out the cells from the buffer according to the given priorities; and

sending the cells read out from the buffer to the fan-out ports, and determining the cell to be finally outputted,

wherein reading out the cells from the buffer according to the given priorities comprises:

reading out in a first cycle a highest priority unicast cell from each buffer if one exists and not reading out any multicast cells in the same corresponding buffer; and

if during the first cycle, a respective buffer does not include a unicast cell, but includes a multicast cell, reading out the multicast cell during the first cycle even if a multicast cell with a higher priority exists along with a unicast cell in another buffer.

14. (Original) The cell processing method as claimed in claim 13, wherein the addresses stored in the address queues are addresses of the cells stored in the buffer.

15. (Original) The cell processing method as claimed in claim 13, wherein the multicast cell addresses are stored in the address queues in distinction from the unicast cell addresses.

16. (Original) The cell processing method as claimed in claim 13, wherein the address queues for storing the multicast cell addresses are multicast connection identifier (MCI) address queues maintained for each MCI.

17. (Original) The cell processing method as claimed in claim 16, wherein the MCI address queue has one write pointer and read pointers as many as the number of fan-out ports.

18. (Canceled).

19. (Original) The cell processing method as claimed in claim 13, wherein the priorities of the unicast cells are determined in the order of their input to the address queues.

20. (Original) The cell processing method as claimed in claim 13, wherein the queue length is a difference value between a write pointer address and a read pointer address.

21. (Original) The cell processing method as claimed in claim 13, wherein at the step of reading out the cells from the buffer, if a head of line (HOL) blocking is produced between the unicast cells, the unicast cell having a higher priority is first read out; if the HOL blocking is produced between the multicast cells, the multicast cell having a higher priority is first read out; and if the HOL blocking is produced between the unicast cell and the multicast cell, the unicast cell is first read out irrespective of the queue length of the cell.

22. (Original) The cell processing method as claimed in claim 13, wherein cases that the cells reach a certain fan-out port are a case that only the unicast cell reaches, a case that only the multicast cell reaches, and a case that both the unicast cell and the multicast cell reach simultaneously, and if both the unicast cell and the multicast cell reach simultaneously, the cell having a longer queue length than the other cell is finally outputted.

23. (Currently Amended) A cell processing apparatus in an asynchronous transfer mode (ATM) switch comprising:

a ~~[[buffer]] plurality of shared buffers~~ for storing cells inputted to the ATM switch;
multicast connection identifier (MCI) address queues for storing buffer addresses of
multicast cells;

unicast address queues for storing buffer addresses of unicast cells; ~~[[and]]~~
fan-out ports for receiving the cells from the respective address queues, and
outputting the received cells to corresponding destinations; and

a reading unit for reading out in a first cycle a highest priority unicast cell from each
buffer if one exists and not reading out any multicast cells in the same corresponding buffer,
and if during the first cycle, a respective buffer does not include a unicast cell, but includes a
multicast cell, reading out the multicast cell during the first cycle even if a multicast cell with
a higher priority exists along with a unicast cell in another buffer.

24. (Original) The cell processing apparatus as claimed in claim 23, wherein the
MCI address queue has one write pointer and read pointers as many as the number of the
fan-out ports.

25. (Canceled)

26. (Original) The cell processing method as claimed in claim 23, wherein the ATM switch first reads out the unicast cell having a higher priority if a head of line (HOL) blocking is produced between the unicast cells; first reads out the multicast cell having a higher priority if the HOL blocking is produced between the multicast cells; and first reads out the unicast cell irrespective of the queue length of the cell if the HOL blocking is produced between the unicast cell and the multicast cell.

27. (Currently Amended) ~~The cell processing method as claimed in claim 23,~~ A cell processing apparatus in an asynchronous transfer mode (ATM) switch comprising:
a buffer for storing cells inputted to the ATM switch;
multicast connection identifier (MCI) address queues for storing buffer addresses of
multicast cells;
unicast address queues for storing buffer addresses of unicast cells; and
fan-out ports for receiving the cells from the respective address queues, and outputting the
received cells to corresponding destinations,

wherein the ATM switch reads the shared buffer memory three times for one cell time slot.

28. (Original) The cell processing method as claimed in claim 23, wherein the ATM switch determines the cell to be outputted according to the queue length if the multicast cell and the unicast cell simultaneously reach the fan-out port.

29. (New) The cell processing method as claimed in claim 1, wherein reading out in the first cycle is performed for subsequent cycles until all unicast and multicast cells have been read out from the shared buffers.

30. (New) The cell processing method as claimed in claim 13, wherein reading out in the first cycle is performed for subsequent cycles until all unicast and multicast cells have been read out from the shared buffers.

31. (New) The cell processing apparatus as claimed in claim 23, wherein reading out in the first cycle by the reading out unit is performed for subsequent cycles until all unicast and multicast cells have been read out from the shared buffers.